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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
HUGHES, SCOTT A	

ART UNIT	PAPER NUMBER
3663	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/766,253	RAY ET AL.	
	Examiner	Art Unit	
	Scott A. Hughes	3663	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/10/2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-29,69-71,91 and 92* is/are pending in the application.

4a) Of the above claim(s) *18,69-71,91 and 92* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17 and 19-29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/23/07;5/7/07*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 5/10/2007 have been fully considered but they are moot in view of the new grounds of rejection presented below. Applicant argues that the amendments to the claims introduce limitations that are not taught by the Thornhill reference used in the last Office Action. Although the Thornhill reference does not teach a fully enclosed case as argued by applicant, applicant's amendments introduced limitations that were not previously searched. A new grounds of rejection based on this further search of the prior art is presented below.

Applicant's amendments are sufficient to overcome the rejections under 35 USC 112.

Election/Restrictions

As stated in prior office actions, claims 18, 69-71, 91, and 92 read on non-elected species and are therefore withdrawn. These claims should be labeled as withdrawn by applicant to show this status instead of (Original) or (Previously Amended) as they currently are.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Agre (6208247).

With regard to claim 1, Agre discloses a land based seismic data collection unit (abstract; Column 3) (Figs .1-4). Agre discloses a non-spherical, fully enclosed case formed of a single housing, the case having a wall defining an internal compartment within the housing (Fig. 1) (Column 2, Line 30 to Column 4, Line 21; Column 4, Line 62 to Column 5, Line 10). Agre discloses at least one geophone internally fixed within the housing (Figs. 1-3) (Column 4, Line 62 to Column 6, Line 68). Agre discloses a clock disposed within the housing (Columns 5-6; Column 7, Lines 27-54; Columns 9-10). Agre discloses a power source 3 disposed within the housing (Fig. 1) (Column 4, Lines 60-67). Agre discloses a seismic data recorder disposed within the housing (Figs. 3-4) (Column 5, Line 18 to Column 6, line 20; Columns 7-10). Agre discloses that each of the elements b-e includes an electrical connection and all electrical connections between any elements are contained within the housing (Figs. 1-4) (Column 2, Line 30 to Column 4, Line 21; Column 4, Line 62 to Column 10). Agre discloses that all of the electronics working together are connected together inside of the case.

With regard to claim 2, Agre discloses that the unit is self-contained and requires no external communications or controls during recording (Columns 2-4) (Figs. 1-2).

With regard to claim 4, Agre discloses that the case comprises a first plate (top) having a first periphery and a second plate (bottom) having a second periphery, wherein

the plates are joined along their peripheries by the wall (Fig. 1) (Column 4, Line 50 to Column 5, Line 10).

With regard to claim 5, Agre discloses that the case is defined by at least one substantially flat wall (sides of case) (Fig. 1).

With regard to claim 6, Agre discloses that the geophone is disposed adjacent to the flat wall (Figs. 1-3) (geophone is part of electronics which are adjacent to the wall).

With regard to claim 7, Agre discloses that the case is defined by at least one plate (top and bottom of housing) (Fig. 1).

With regard to claim 8, Agre discloses that the geophone is disposed adjacent to the plate (Figs. 1-3) (geophone is part of electronics which are adjacent to the plate).

With regard to claim 9, Agre discloses a land based seismic data collection unit (abstract; Column 3) (Figs .1-4). Agre discloses a non-spherical, fully enclosed case formed of a single housing, the case having a wall defining an internal compartment within the housing (Fig. 1) (Column 2, Line 30 to Column 4, Line 21; Column 4, Line 62 to Column 5, Line 10). Agre discloses at least one geophone internally fixed within the housing (Figs. 1-3) (Column 4, Line 62 to Column 6, Line 68). Agre discloses a clock disposed within the housing (Columns 5-6; Column 7, Lines 27-54; Columns 9-10). Agre discloses a power source 3 (Fig. 1) (Column 4, Lines 60-67). Agre discloses a seismic data recorder disposed within the housing (Figs. 3-4) (Column 5, Line 18 to Column 6, line 20; Columns 7-10). Agre discloses that each of the elements b-e includes an electrical connection and all electrical connections between any elements are contained within the housing (Figs. 1-4) (Column 2, Line 30 to Column 4, Line 21;

Column 4, Line 62 to Column 10). Agre discloses that all of the electronics working together are connected together inside of the case.

With regard to claim 10, Agre discloses that the unit is self-contained and requires no external communications or controls during recording (Columns 2-4) (Figs. 1-2).

With regard to claim 11, Agre discloses that the power source is disposed within the case (Fig. 1) Column 4, Lines 60-67).

With regard to claims 14 and 15, Agre discloses that the wall is not spherical or hemispherical (Fig. 1)

With regard to claim 19, Agre discloses a tilt meter disposed within the case (Column 3, Column 6) (magnetic and acceleration sensors can be used to sense tilt).

With regard to claim 21, Agre discloses a radio unit 4 (Figs. 1-4) (Columns 2-3, Column 4, Line 61 to Column 5, Line 10, Columns 10-11).

With regard to claim 26, Agre discloses a radio frequency identification 4 (Figs. 1-4) (Columns 2-3, Column 4, Line 61 to Column 5, Line 10, Columns 10-11).

With regard to claim 27, Agre discloses that the power source provides all power to the unit while deployed (Column 2, Lines 56-67; to Column 4, Lines 64-67).

With regard to claim 29, Agre discloses an internal control mechanism for controlling all functions of the unit while deployed (Figs. 3-4) (Column 5, Line 18 to Column 6, line 20; Columns 7-10).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agre.

With regard to claim 3, Agre does not disclose that the case is watertight. Agre discloses that the device can be dropped from a ship (Columns 2-3), but does not state that this device is waterproof. It would be obvious that a device dropped from a ship (into water) would be waterproof in order to avoid having the electronics in the device short out rendering the device useless.

Claims 16-17 and 24-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agre as applied to claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 above, and further in view of Orban (6353577).

With regard to claim 16, Agre discloses that the case defines an external surface, but does not disclose that the external surface is provided with ridges to enhance coupling of the unit with the earth. Agre discloses that the seismic sensors are placed in a survey area, but does not disclose the coupling that they have with the ground. Orban teaches that seismic sensors can be coupled to the earth to sense seismic signals while being fixed inside of the housing of the device containing the geophone (Figs. 1, 4, 6-7) (Columns 3-6). Orban teaches that the surface of the case that contains the geophones and electronics can have ridges that enhance coupling of the

unit to the earth (Column 6, Lines 1-25). It would have been obvious to modify Agre to include ridges as taught by Orban in order to couple the device to the ground to enhance coupling and limit noise in the received signals.

With regard to claim 17, Orban teaches that the case defines an external surface and that the external surface is provided with at least one spike 64 (Figs. 6-7) to enhance coupling with the earth (Column 6, Lines 1-25).

With regard to claim 24, Agre does not disclose an external connector in electrical communication with the geophone, the connector extending through the wall of the case and disposed within the wall so as to be set in from the external surface of the wall. Agre discloses that the unit communicates via radio antenna, but does not disclose an external connector. Orban teaches using an external connector 22 in electrical communication with geophones in a housing, the connector being set in the surface of the casing (Figs. 4-7) (Column 3, Lines 29-55; Column 5, Line 60 to Column 6, Line 25). It would have been obvious to modify Agre to include an external connector as taught by Orban in order to allow the geophone unit to connect to other geophone units in the area to form a seismic network.

With regard to claim 25, Orban teaches a water tight, pressure resistant cap disposed over the external connector (Figs. 4-7) (Column 3, Lines 29-55; Column 5, Line 60 to Column 6, Line 25). The connection must be watertight or else the electronic control package and geophones would not function.

Claims 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agre as applied to claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 above, and further in view of Harmon.

With regard to claim 12, Agre does not disclose that that power source includes a fuel cell attached to the case. Agre discloses batteries as the power source. Harmon discloses that fuel cells are an alternative to batteries and that they can be used as an external power source attached to a device (Column 6, Lines 55-60). It would have been obvious to modify Agre to use a fuel cell instead of a battery as a power source in order to have a longer lasting source of power.

With regard to claim 13, Agre does not disclose that the power source includes a solar cell attached to the case. Agre discloses batteries as the power source. Harmon discloses that solar cells are an alternative to batteries and that they can be used as an external power source attached to a device (Column 6, Lines 55-60). It would have been obvious to modify Agre to use a solar cell instead of a battery as a power source in order to have a renewable power source that is easily rechargeable.

Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agre as applied to claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 above, and further in view of Wood.

With regard to claim 20, Agre does not disclose a GPS location transducer. Wood discloses that GPS receivers are used with geophones to determine the position from which the seismic data was recorded (abstract). It would have been obvious to

modify Agre to use GPS so that the device could be located and the data it obtains matched to its position after its deployment to the surface of the earth.

Claims 22-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agre as applied to claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 above, and further in view of Sternberg.

With regard to claim 22, Agre does not disclose that the clock is a crystal clock. Sternberg discloses the use of crystal clocks in a seismic recording system (Column 6, Lines 33-52). It would have been obvious to modify Agre to include a crystal clock as disclosed by Sternberg in order to have a stable clock in order to maintain timing accuracy.

With regard to claim 23, Agre does not disclose that the clock is a rubidium clock. Sternberg discloses the use of rubidium clocks in a seismic recording system (Column 6, Lines 33-52). It would have been obvious to modify Agre to include a rubidium clock as disclosed by Sternberg in order to have a stable clock in order to maintain timing accuracy.

Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agre as applied to claims 1-2, 4-11, 14-15, 19, 21, 26-27, and 29 above and further in view of Donoho.

With regard to claim 28, Agre discloses that the power source is a battery (Column 2, Lines 56-67; to Column 4, Lines 64-67). Donoho teaches that lithium-ion

batteries are used in seismic data acquisition units containing geophones (Column 6, Lines 39-48), and therefore it would have been obvious to use a lithium-ion battery in Agre in order to have a reliable power source that does not need to be recharged.

Conclusion

The cited prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott A. Hughes whose telephone number is 571-272-6983. The examiner can normally be reached on M-F 9:00am to 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jack Keith can be reached on (571) 272-6878. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SAH

JACK KEITH
SUPERVISORY PATENT EXAMINER